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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,983	03/31/2005	Matthew J. Thiele	20020020PCT-US	2276
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EXAMINER LEUNG, CHRISTINA Y				
ART UNIT 2613		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/529,983

**Applicant(s)**

THIELE, MATTHEW J.

**Examiner**

Christina Y. Leung

**Art Unit**

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 March 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-11 is/are rejected.  
7) ☒ Claim(s) 2,3,5 and 8 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 31 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Objections***

1. **Claims 2, 3, 5, and 8** are objected to because of the following informalities:

In **claims 2 and 3**, the word “mutli-processor” (sic) in line 1 of each claim should be changed to “multi-processor.”

**Claims 5 and 8** should each end with a period (“.”) after the word “arrays.”

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 11** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 11** recites “said optical component and said electrical component” in lines 1-2 of the claim. The claim is indefinite because there is insufficient antecedent basis for this limitation in the claim because claim 1 on which it depends does not previously recite an optical component or an electrical component. Examiner respectfully suggests that Applicant may amend claim 11 to depend on claim 10 instead.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1-3** are rejected under 35 U.S.C. 102(c) as being anticipated by **Sarnikowski et al.** (US 6,453,406 B1).

Regarding **claim 1**, Sarnikowski et al. disclose a data processing network (Figures 1 and 2A) comprising:

a first multi-processor system having a first set of processors (i.e., section 2 comprising a plurality of processors P as shown in Figures 1 and 2A); and

a first set of optical network interfaces electrically coupled to the first set of processors (i.e., data transfer sections 34a, 34b, 36a, and 36b as shown in section 2 in Figure 2A);

a second multi-processor system having a second set of processors (i.e., another section such as section 1 comprising another plurality of processors P as shown in Figure 1); and

a second set of optical network interfaces electrically coupled to the second set of processors (i.e., additional data transfer sections 34a, 34b, 36a, and 36b); and

an optical cable (fiber optic communication links 26) connected between the first set of optical network interfaces and the second set of optical network interfaces, wherein the first multi-processor system communicates with the second multi-processor system via the optical cable (column 4, lines 35-59; column 5, lines 62-67; column 6, lines 1-16).

Regarding **claims 2 and 3**, Sarnikowski et al. disclose that the first or second multi-processor system further includes an optical network connected between the first or second set of optical network interfaces and the optical cable (Figure 1).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 4 and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sarnikowski et al.** in view of **Stevens** (US 4,554,673 A).

Regarding **claims 4 and 7**, Sarnikowski et al. disclose a system as discussed above with regard to claim 1 including first and second sets of processors, but they do not specifically disclose that either set is a plurality of gateways. However, Stevens teaches a system that is related to the one described by Sarnikowski et al. including a plurality of processors (i.e., devices 4) connected with optical network interfaces 3 and optical cables (Figure 1). Stevens further teaches that devices 4 may include processors or gateways to other networks (column 2, lines 30-38).

Regarding claims 4 and 7, it would have been obvious to a person of ordinary skill in the art to include gateways as taught by Stevens in the system disclosed by Sarnikowski et al. in order to advantageously enable the other sets of processors in the system to communicate with other networks through the gateways and thereby expand the reach of the communication system.

8. **Claims 5 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sarnikowski et al.** in view of **Ramaswami et al.** (US 6,650,803 B1).

Regarding **claims 5 and 8**, Sarnikowski et al. disclose a system as discussed above with regard to claim 1 including first and second sets of processors, but they do not specifically disclose that either set is a plurality of field programmable gate arrays. However, various ways of implementing processor elements are well known in the electronic art, including using field programmable gate arrays. In particular, Ramaswami et al. teach a system that is related to the one described by Sarnikowski et al. including a plurality of processors 685 connected with optical network interfaces and optical cables (Figures 7 and 8). Ramaswami et al. further teach that the processors may be implemented in various ways known in the art, including as field programmable gate arrays (column 4, lines 40-45; column 9, lines 53-55).

Regarding claims 5 and 8, it would have been obvious to a person of ordinary skill in the art to implement the processors as field programmable gate arrays as taught by Ramaswami et al. in the system disclosed by Sarnikowski et al. as an engineering design choice of a way to effectively provide the already-disclosed processor elements using widely available and known components. The claimed differences exist not as a result of an attempt by Applicants to solve an unknown problem but merely amount to the selection of expedients known as design choices to one of ordinary skill in the art.

9. **Claims 6 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sarnikowski et al.** in view of **Davis et al.** (US 5,054,873 A).

Regarding **claims 6 and 9**, Sarnikowski et al. disclose a system as discussed above with regard to claim 1 including first and second sets of processors, but they do not specifically disclose that either set is a plurality of sensors. However, sensor elements are generally well known in the optical and electrical arts. In particular, Davis et al. teach a system that is related to

the one described by Sarnikowski et al. including a plurality of processors 62 connected with optical network interfaces (couplers 10) and optical cables 64 (Figure 2). Davis et al. further teach that the system may connect other elements with the processors, including sensors (column 2, lines 39-47).

Regarding claims 6 and 9, it would have been obvious to a person of ordinary skill in the art to including sensors as taught by Davis et al. in the system disclosed by Sarnikowski et al. in order to advantageously enable the other sets of processors in the system to communicate with sensors and thereby process data observed/detected from sensors as desired in the context of a larger control or processing system. For example, it is well understood in the electronic system art that sensors may be used to provide feedback for effectively adjusting control values that could be provided by the already-disclosed processor elements.

10. **Claims 10 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Drewlo et al.** (US 4,748,617 A) in view of **Szymanski et al.** (US 6,016,211 A).

Regarding **claim 10**, Drewlo et al. disclose an optical network interface (Figures 1 and 2) comprising:

- an optical component having an optical interface (including transmit and receive fibers 104 and 106 connected to modems 22);

- a detector array coupled to the optical interface (i.e., optical receivers in modems 22); and
- a laser array (i.e., optical transmitters in modems 22, which may comprise lasers; column 21, lines 42-44); and

- an electrical component having a decoder array and an encoder array (including logical transmitter 96 and logical receiver 112);

a receive router and a send router (including inward multiplexer 88 and outward multiplexer 124);

a receive buffer array and a send buffer array (including inward decoupling memory 92 and outward decoupling memory 118); and

an electrical interface (including high speed serial data in and out lines 80, 82, 84, 86, 126, 128, 130, and 132).

Drewlo et al. disclose lasers in modems 22 but do not specifically disclose that the vertical cavity surface emitting lasers (VCSELs). However, various types of lasers are well known in the optical communication art, including VCSELs. Szymanski et al. in particular teach a system that is related to the one described by Drewlo et al. including an optical network interface (Figure 33) and further teach using VCSELs to implement a laser array for optical transmission (column 30, lines 23-61). Regarding claim 10, it would have been obvious to a person of ordinary skill in the art to use VCSELs as taught by Szymanski et al. as the already-disclosed lasers in the system disclosed by Drewlo et al. as an engineering design choice of a way to effectively provide the already-disclosed laser elements using widely available and known components to achieve the predictable result of providing optical transmission of signals.. The claimed differences exist not as a result of an attempt by Applicants to solve an unknown problem but merely amount to the selection of expedients known as design choices to one of ordinary skill in the art.

Regarding **claim 11**, as well as the claim may be understood with respect to 35 U.S.C. 112 discussed above, Drewlo et al. generally disclose that the optical component and the electrical component are connected to each other (Figures 1 and 2), but they do not specifically



disclose that the optical component and the electrical component are connected to each other via bump bonding. However, various ways of physically connecting optical and electronic components are known in the art, including bump bonding, which Szymanski et al. also in particular further teaches in their related system (column 31, lines 25-33). Regarding claim 11, it would have been obvious to a person of ordinary skill in the art to use bump bonding as taught by Szymanski et al. in the system described by Drewlo et al. in view of Szymanski et al. as an engineering design choice of a way to effectively provide the already-disclosed connection using widely available and known method to achieve the predictable result of providing an effective connection between the components. The claimed differences exist not as a result of an attempt by Applicants to solve an unknown problem but merely amount to the selection of expedients known as design choices to one of ordinary skill in the art.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung, whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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/Christina Y. Leung/

Primary Examiner, Art Unit 2613